RESETTLEMENT AS A RESILIENCE STRATEGY

And the Case of Isle de Jean Charles

Lowlander CENTER

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Contents

I. Introduction

This document is intended to guide state-level efforts to resettle coastal communities, as the threat to their existence and safety from coastal land loss and sea level rise becomes increasingly critical.

The community itself and its members are the key participants in the resettlement process. They are the citizen 'clients' of the government whose safety and present/future wellbeing are the core objectives of the resettlement process. **Without the full engagement of the community's residents in all phases of the process described herein from the very first step of considering resettlement through the future evolution of the new community over decades, the resettlement will fail.**

The parish in which a resettling community is located, the receiving parish - if the resettlement will be outside of the original parish – and the regional planning organization should also be partners.

No coastal Louisiana resident wishes to move away from the family/ community network of relationships in which they are embedded, nor from the quality of life they enjoy, nor from the place that supports that life – the land, waters, wildlife and flora. Nor do they wish to stop doing those enjoyable family-based recreational activities that depend upon the ecosystem in which they live.[1] Coastal Louisiana residents want to remain in place – when the sun is out and no storms are threatening. They do not want to move (Burley et al, 2005). Only when the risks – very powerful and frequent storms, and widespread destruction of structures, infrastructures and ecosystem - strongly outweigh the benefits of staying in place, does consideration of moving away from the coast come into the thinking of the residents.

Some Louisiana coastal residents have already made the decision to move either individually or at the household level due to the frequent and devastating storms since the beginning of the 20th century (Bailey et al., 2014, Dalbom, et al. 2014). Youth describe how they do not expect to be able to remain in the area near where their extended families now live even though their grandparents and parents might be able to live out their lives there. It is expected that the pattern individual/housing migration north will continue and may increase depending upon storm frequency and magnitude. Census data suggest that the relocation destination is preferably within the coastal zone but farther north.

Assistance for these personal/family relocations may become part of a state plan of achieving safety for at risk coastal residents. At this time the assistance comes from a buyout of their severely damaged homes through FEMA and HUD post-disaster programs. The owners may use the buyout funds to move. For coastal residents who rent, no such resource is available to them to achieve the relocation successfully. This document does not include consideration of such individual/household moves.

In contrast, the systems-based resettlement planning process described herein is proposed to

[1] Resistance to resettlement, particularly "being told (forced in their mind) what to do" is the common denominator of resettlement efforts according to Gene Barr, retired U.S. Army Corps of Engineer resettlement specialist who supervised the Tug Fort, W. Virginia, resettlement and has been involved in the Corps' NonStructural Committee for many years (personal communication, August 30, 2015).

support the "resettlement" (which by definition includes "settlement") of **groups** of coastal Louisiana residents greater than a family/household. In other words, communities of varying sizes.

Very few earlier resettlement experiences are available from which to draw understanding of the process and establishing of planning best practices for 2015 and beyond. This document reviews what has occurred and identify useful elements of a plan for coastal resettlement.

II. Background and Framework for Resettlement Planning

A complex-systems-based community planning process provides an effective synthesis of methods that can be used to create and support extreme community change, in this instance, for successful community resettlement in coastal Louisiana. **Applying a complex-systems-based approach in a range of complex human endeavors has proven to deliver consistently more successful outcomes.**

The impetus for the resettlement is the rapid loss of land in coastal Louisiana caused by sea-level rise and powerful tropical storm-induced inundation, among other causes, that puts the communities at severe risk to their effective survival. The conditions of the resettlement present several challenges and complexities that require a more precise planning method than might be implemented for other community changes, therefore benefitting from a community systems approach:

- The process is excessively complex.
- Failure to accomplish a successful resettlement, including in the time-frame required to manage community risk, could lead to a potentially catastrophic outcome.
- And because community resettlement has so few examples to learn from, the precise outcomes are uncertain. Resettlement of coastal communities at risk to sea level rise and storm inundation in the lower 48 states has never occurred.

A History of Resettlement Planning and Implementation in the U.S.

In 1893 Cheniere Camanada (to the west of Grand Isle, Louisiana, 30 miles southeast of Isle de Jean Charles) was devastated by a powerful hurricane. The event killed 779 residents. Those who survived moved inland but not dramatically away from the coast. A storm in 1915 damaged the new location to which the Camanada residents moved and they then moved again farther north (McNamara, Aug. 2015). Other Louisiana coast relocations occurred due to devastating coastal storms in the early and mid 20th century -- St. Malo, Manila Village and Old Shell Beach in Plaquemines and St. Bernard Parishes. Relocation of the residents was neither organized nor clustered (Dalbom, et al., 2014). With the current knowledge and technology to predict future patterns of storm inundation including sea level rise, this NDRC resettlement project will be guided by estimates of storm surge height extending 50 years out so that the proposed resettlement will be placed in a location safe longer than the 18 years experienced by the Cheniere Camanada residents in their first retreat from the coast.

What else is known about how to resettle groups of people, and how to develop the successful planning process to accomplish such, is very limited. During the Great Depression, the Works Progress Administration created rural communities to house those made homeless and incomeless by the Dust Bowl and there is some literature on the methods the Works Progress

Administration used. These communities were created around the country, including Alaska and Louisiana, namely Shriever, part of Terrebonne Parish. Research of this resettlement process identifies the minimal involvement of the settlers in the planning process as an impediment to their success.

Suburban settlements were also created by the federal government during the 1940s to experiment with more robust uses of greenspace, community centers and safe play areas. Green Hills, Ohio, Greenbelt, MD, and Greendale, Wisconsin were part of the New Deal innovation. Families recruited for the New Deal communities were selected on the basis of their being of middle income, thus making the settlement dynamic artificial in terms of the usual income distribution of most communities and thus not a model for a diverse community. Similarly Lake Vista on the shore of Lake Pontchartrain in New Orleans begun in the 1930s but built out in the 1950s, follows many of the earlier New Deal greenbelt communities' concepts and was completed also by the WPA. Again, the developers constructed homes for those with higher income and thus the process is not particularly useful for a mixed income community such as the coastal Louisiana communities who will or may resettle.

While the ideas implemented in these new communities offer design ideas that are popular in the "new urbanism" movement today and may be useful for new Louisiana resettled communities (some are incorporated in the site plan being proposed in this application), their creation offers little to contribute to a planning process for those who are at risk to homelessness or to escape environmental conditions, i.e. those who are being "forced" to move. What these communities do have that may serve as a model for resettlement of coastal Louisiana communities are design elements such as a centrally located community center with community services and some small commercial shops. They were also concerned, as mentioned above with safe play areas. Cajun families have always emphasized family housing clusters that permit frequent visiting and joint outdoor family activities such as seafood boils. The green concepts developed for the WPA and New Deal and Lake Pontchartrain neighborhood all have land design features that support those goals.

Communities resettled in the United States due to environmental risks are few. The reason for their resettlement has usually been to remove them from floodplains and the U.S. Army Corps of Engineers has been the most active federal agency in resettlement/redevelopment (re-doing the community very close to its original site). Tug Fork, Valley which passes through West Virginia, Virginia and Kentucky is frequently mentioned as an example of resettlement and redevelopment (location of new structures safely but near to the original ones that were damaged). The flood which spawned the modern efforts to protect the affected communities occurred in 1977 and the redevelopment of Martin, Kentucky, one of the most impacted communities still continues to today – 38 years after the event.[2] The delay is due to the means by which the redevelopment funding has had to be acquired – incremental appropriations through the Water Resources Development Act (WRDA). The phases have evolved as these monies have become available.

Another pair of community resettlements occurred on the upper Mississippi River after the 1993

[2] See http://www.martinredevelopment.com for comprehensive description of the planning and implementation of the Martin, Kentucky Redevelopment Plan.

flood: Rhineland, Missouri and Valmeyer, Illinois. Because there have been so few from which to draw lessons, these two are mentioned frequently in the literature, especially Valmeyer. As with the Tug River Valley redevelopments, the short distance the communities moved mitigated some of the resistance to move but still there was resistance as indicated by the retired Corps official, Gene Barr. The latter community, Valmeyer, Illinois, contained a population of 900 and has only recently achieved that original population. One of the reasons cited for the slow progress was the lack of housing affordable to modest-income residents.

Indigenous Resettlement in Response to Extreme Weather and Changing Climate

As the first community proposed to resettle from the edge of the Louisiana coast is indigenous, Isle de Jean Charles, the authors of this document pursued the efforts of other tribal communities who are at risk to flood threats and have resettled or attempted to do so. The challenges which the other tribes face include flooding from rivers, sea level rise on the coast, tsunami damage from earthquakes and the melting of permafrost undermining the land base of the communities. All prompt the same need: to move where the land is higher and more stable.

In addition to coastal Louisiana native tribes that have lost the land around their originally fastland communities, coastal Washington state and coastal Alaska are the two parts of the United States where resettlement of tribes is occurring and being requested. Some of the Washington state tribes that have been able to relocate or are in the process of seeking such an outcome include: Quileute Reservation in La Push, Washington (see Figure 1), the Tulalip Reservation on and in the community of Tulalep Bay, Washington and the Sauk-Suiattle Indian Tribe in Darrington, Washington. As with the non Native communities described above, raising the necessary funding is the prime challenge the communities have had. Second is obtaining a location for the resettlement. No contact has been made with these tribes during the planning process for the resettlement of Isle de Jean Charles other than to read website articles about their efforts. It is planned that such contact will be undertaken if the resettlement is funded.

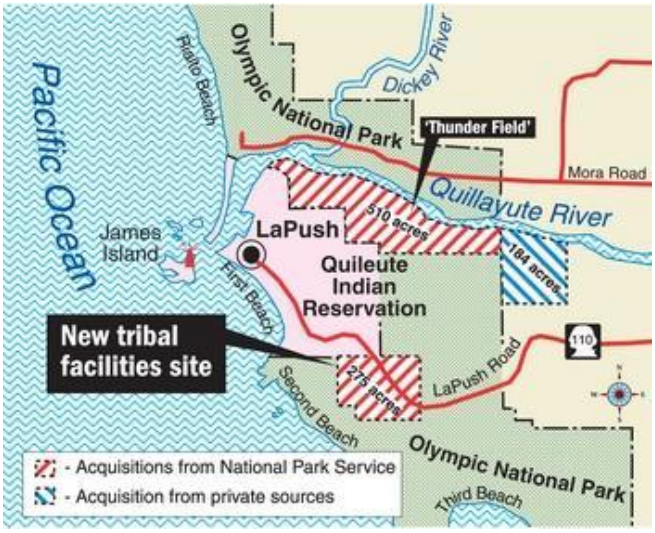

Figure 1. Quileute Indian Reservation relocation, Washington State.

However, the Louisiana coastal tribes have had an opportunity to meet with and learn from the Alaskan indigenous groups who are attempting to relocate. This effort began just before the BP oil spill occurred in the waters off of Louisiana five years ago. Representatives from Newtok, western coast of Alaska community of 300+ members trying to resettle, were invited to Louisiana to discuss common climate change challenges. During the same period Louisiana tribal members traveled to Alaska to learn how the communities had responded to the Exxon

Valdez oil spill. Visits were made by the two Louisiana groups of coastal community officials to the Eyak Tribe in Cordova.[3] Since then Eyak tribal members have come regularly to Louisiana to meet with the coastal Louisiana tribes to support their revitalization.

Seeing the tribal rejuvenation that has taken place after the Exxon Valdez impact in Alaska has contributed to the Louisiana tribes' understanding of how to gain resilience and sustainability of their culture, environment relationship and community physical integrity. These experiences have given them more capacity to deal with their challenges in resettlement. Since then Louisiana tribes have engaged other Alaskan tribes such as the Shishmaref and Kivalina at tribal meetings around the country and their knowledge of resettlement challenges and means of dealing with them has grown. During the creation of this resettlement plan, representatives of the Lowlander Center were able to meet in Anchorage with the leads of the Alaska NDRC application. They and the state of Louisiana's lead agency, Louisiana Office of Community Development (OCD) have agreed to share a common paragraph in both applications and to bring the indigenous groups together to work on resettlement if both states win their awards. A commitment to fund the first meeting one half way between the locations (Wisconsin) has been made by NOAA.

One final resource that the planning team for Isle de Jean Charles called upon when considering best practices for both the planning process and the outcomes: The Spokane, Washington Tribe of Indians has created a "Sustainable Community Master Plan" which includes elements useful for the resettlement process.[4] The preparation of sustainability and resilience master plans gives resettlement planners more options to achieve the requirement of this proposal to create a long-term sustainable community.

Modern Approaches to Comprehensive Systematic Resettlement Planning

Complex- Systems planning methods

It is important to introduce this topic of the 'broader grouping' of communities being considered for resettlement at the beginning of describing the planning process. Considering a broader grouping of what one is creating is a key best practice of holistic complex planning and Systems Engineering, a detailed process of implementing the construction of products that offers important checks on the success of the process.[5] The reason for the importance of the grouping of communities under resettlement is that the resettlement process that is developed can benefit all the eventual types of community resettlement that may occur, not just the specific one that is being currently created.

The logic is simple: If common qualities of a successful resettlement are identified as are the common best practices of achieving successful resettlement, then each effort to create a new community will have a better chance of being successful. From having a general understanding of resettling communities, it is possible then to have each of the resettlements have qualities that add to their success. An example of a process principal – how the planning and implementation is done -

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[3] See this website for information about the Eyak Tribe http://www.chugachmiut.org/tribes/eyak.html

[4] Spokane Tribe of Indians Sustainable Community Master Plan. http://www.spokanetribe.com/userfiles/file/SCMP%20Draft%209_26_2012.pdf

[5] Several Isle de Jean Charles tribal members work for oil-industry boat building companies within the region. When they were introduced to the goals that we had incorporated from Systems Engineering, they were supportive of them.

that should apply to all community resettlements, for example, is the **direct and frequent engagement of community members in all aspects of the process** from which resettlement will occur. Then if the decision to resettle is made, the engagement of the community's members continues to enable them to participate in all the key decision making activities as the resettlement unfolds. Size of the community– either small or large should not be a barrier to this general best practice.

A second example of a concept core to a holistic complex-systems planning and to Systems Engineering is the term **stakeholder**, a term that is frequently used in the recent interest in community engagement about environmental issues and community values. Systems planning requires that every stakeholder to a "outcome" be identified and engaged as the planning and implementation process goes forward. The strong encouragement to do this is a result of recognizing that stakeholders may have a vested interest in the success of the project to the very best outcome of investing in the effort financially and with their own effort. Or, on the negative side, they may have an interest in resisting the effort. To know the latter permits the community members and those assisting them to consider how that opposition might be addressed and mitigated.

The systematic planning process developed for the resettlement planning for Isle de Jean Charles is an adaptation of approaches utilizing integrated holistic planning and complex systems theory.

Systems Engineering is too rigid of a process with too many specified requirements of performance to be applied for a human dimension process implemented by multiple actors within multiple organizations loosely coupled and not pre-trained in the process. That said, if the state creates a program to facilitate inward movement of the coastal population that is well staffed and financed, it will be possible to implement more systematic best practices than if that commitment to capacity is not made. The outcome of this investment in a systematic process up front is the creation of new settlements that will likely make the best contribution to the Louisiana coastal society. This statement is one that has likely never been stated, but needed to be stated before: climate change is placing community planning and change in a framework of dramatically different magnitude. Perhaps not since the massive creation of bedroom communities when the post-World War II family formation and population increase ("baby boomers") required metropolitan regions to expand quickly have such regional changes been considered within what will be a relatively short time span. Thus, our reason for including in this process description some of the systems engineering best practices that might be used.

Figure 2. Diagram from the Public Risk Institute and Natural Hazards Center 2001.

The challenges of inland migration of the coastal area of an entire state (+/- 500+ linear miles of coastline) are daunting. That being said, there are multiple aspects of the process that will create a state relocation/resettlement process that will achieve a higher level of success. As the Systems Engineer who is advising this submission argues strongly: "**Resettlement is a complex process with a wide array of risks** [perhaps best phrased as challenges] to achieve resettlement successes. Understanding the principles of Complex Systems Theory and practicing them as much as possible will be beneficial to successful outcomes." The team suggests, being familiar with best planning practices including Complex Systems Theory-Planning and Systems Engineering, will give those who are undertaking the process a better chance at success. Finally it is important to appreciate a stipulation from comprehensive planning: A community's resettlement is never complete. **The evolution of a community is a permanent process**; the hope is that the evolution supports the future generations who occupy it as well as those who are the first to do so.

Corps of Engineers experience and planning practices

As described above in the history of the limited resettlement efforts in the United States caused by atmospheric disruptions, the U.S. Army Corps of Engineers has the most experience in planning for resettlements although the progress of acquiring funding to achieve implementation has been limited. To learn more about the process that the Corps uses we refer you to the Master Plan that the Corps prepared for the relocation of Kivalina, Alaska, one of the more widely known Alaskan communities that has been attempting to resettle. [6]

The Corps has honed a planning process that includes the concepts of identifying problems – what the project is attempting to address, opportunities for risk reduction, formulating alternative plans, evaluating plan effects and comparing the effects of alternative plans. The Corps requires at least five well-developed plans for comparison including a non-action plan and then selection of the one, which will be implemented. This comparative analysis is similar to the process which complex planning systems use that requires at least three alternatives for the various planning decisions and then an analysis of which of the options is best based upon goal and objective criteria. The Corps has evaluation criteria for the plans considering both the risks and the benefits, while systems engineering emphasizes the risks.

In addition, the Corps requires community engagement but it is on the "back end" of the process, mainly once the plans are formulated rather than throughout the entire process. This is a serious drawback when analyzed through the lens of more robust community engagement principles and was the downfall of the 1930 Resettlements. These will be emphasized in the section that follows which describes alternative approaches advocated by the United Nations, HUD and EPA.

[6] U. S. Army Corps of Engineers, Alaska District. 2006. *Relocation Planning Project Master Plan: Kivalina, Alaska*.
http://www.poa.usace.army.mil/Portals/34/docs/civilworks/reports/KivalinaMasterPlanMainReportJune2006.pdf

Important Qualities of a Resettlement Planning Process

System-based planning principles differ from general planning approaches. The following are examples that should be applied in creating a plan for the resettlement of threatened communities:

- Continual analysis of the planning efforts as they are undertaken rather than the belief that the planning process unfolds step-by-step without the requirement for constant review.
- An iterative process (having each effort improve what has already been developed as well as refinement of the process going forward) as an outcome of continual analysis.
- A commitment to specified management and implementation approaches such as the two above-mentioned processes, rather than merely an assumption that management and implementation will be carried out.
- Stakeholders are the key actors within the process. It is critical to identify all persons and organizations having a vested interested in the effort. Some will desire to make a positive contribution, have positive involvement, or wish the project well. There may be others whose stake is to discourage the effort. All must be identified, the latter within the topic of risk identification and management.

Steps of the Systems Planning Process

Multiple steps and outputs are required to achieve a successful plan for a specific community. They include:

- Description of a vision for the resettlement shared by the resettling community and the support organizations, such as the Parish and State. The vision should specify the problem that is being addressed. If in the process of planning or implementation a rift occurs in the shared vision, the differences will need to be resolved.
- Description of the actions required to accomplish a successful resettlement, i.e. the solutions to the problem specified in the vision.
- Identification of the risks that may arise to prevent successful, timely completion of the activity and describe strategies for mitigating those risks. With continual community involvement, use checkpoints, review, and metrics to reveal flaws and misconceptions.
- Description of the resettled community (Resettlement Plan) and the qualities of it that will be judged to determine its completeness, correctness and quality of the settlement (Resettlement Specifications). Evaluation of the resettlement is needed to feed back into the continual improvement of the specific resettlement process as well as to the process for the general class of coastal communities. Note: Continual improvement should continue to be the 'gold standard' of the settlement once it is occupied and functional, not just in the construction phases.
- Create a glossary of terms and concepts.

Actions to Create a Planning Process for Various Community Types

- Describe both common problems and variations in those problems among coastal communities in terms of resettlement. Specify solutions to the problems so that the solutions vary in the same way as the problems.
- Create the standards and procedures, in documentation and supporting automation, that institute a standardized Coastal Community Resettlement process.
- When the generic process is inadequate to support the needs of a particular community (a "contingency"), incorporate variations into the implementation of the solutions as they emerge if the benefits for doing so outweigh the benefits of keeping the process standardized across types of communities. Some needs will be outside of or otherwise conflict with identified resettlement objects or cannot be viably satisfied given the available resettlement resources. These cannot be addressed by the planning process.
- Provide unified management of Coastal Community Resettlement. Do not treat each application as a separate process with no overlap of process and implementers. Establish an organizational commitment to the combined success of all resettled communities.

The Impact of Community Size

The various sizes of communities that are likely to be at risk will impact the resettlement approaches. The communities along the coast range from a cluster of extended family members to small towns and cities.

Small clusters of homes, most often extended families.

The bayou system of old river paths has been the preferred location of those who settled within the lower reaches of the bayous because it is high ground. Usually additional houses (as the children create next generation families) were placed behind those on the bayou rather than extending them up and down the bayou. It is not known to what extent those families who have already relocated inland have done so by purchasing existing homes that are clustered together or creating a cluster by buying or building one and then adding more. Research conducted post Katrina of St. Bernard residents and their post-storm locations showed that some St. Bernard residents who lived in the same neighborhood in the Parish relocated to the same subdivisions in St. Tammany Parish, sometimes to the same streets or cul de sacs (Lasley, 2012). These clusters were accomplished by word of mouth of those who are relocated inviting extended family and friends to contact the same building contractors or to consider buying homes nearby those who had moved. Social, religious and retail services from St. Bernard were "attracted" to relocate near to these clusters as well. The outcome was an individualized relocation that had a "flavor" of resettlement of small communities. Such a pattern of relocation might occur in other parts of the coast if damaging storms strike there, but would depend on the availability of land and homes in proximity to each other.

Small towns and communities

It may be possible that small communities will also be able to resettle away from coastal Louisiana. Isle de Jean Charles tribe is 600 members but some of those not living on the Island do not live in the area and of those who do, some will not choose to resettle in the tribal community. That they have already been forced to disperse will likely limit the reconnection but that conclusion is not yet known. Too few resettlements have occurred anywhere in the United

States for there to be firm theories about dispersed communities reconnecting once new communities are built for them. Other questions arise such as how large can a community be and still resettle as a group? We know that communities in the range of 500-1500 have resettled (Martin, KY = 600+, Valmeyer, Il 1200) but the distance of the move for these communities is short.

For communities of a "town" size of several thousand for example, it is possible that residential areas will expand and density in existing communities on high ground, and that business, medical, social, educational and religious institutions will need to expand. This occurred in St. Tammany Parish when displaced St. Bernard Parish residents resettled there independently. A driving factor of this consequence is the constrained availability of land in the northern reaches of the coastal zone.

Cities

Cities such as Houma will not be resettled in mass because of their extensive size. However, movement of businesses, residential subdivisions, the city's emergency management center have already occurred and other institutions such as the public schools are already beginning to ask the question of future school placement as those closer to the coast decrease in student count. It will be important to consider the "common" challenges of the larger communities' need to move north to do so in as effective and cost efficient manner.

II. Plan and Process of Resettling IDJC

In the face of a rising sea level and its effects on the safety and viability of coastal communities, nations worldwide have acknowledged the urgent need to establish working models to assist in resettling coastal communities while maintaining their cultural integrity. The Isle de Jean Charles Native American tribe located in coastal Louisiana, a region that leads the world in land loss,[i] is ideally positioned to develop and test resettlement adaptive methodologies because their need to resettle is urgent. Until the new millennium, the Tribe's self-sufficiency and ability to adapt to change and maintain culture at the site of their community were strong and allowed most tribal families to remain on the site called "The Island." With the loss of more than 98 percent of the land, however, relocation is inevitable; only 320 acres remain of what was the 22,400-acre Island in 1955 and many families have already been forced to leave the Island.

In visioning a culturally appropriate, healthy and sustainable community, utilizing best practices, the tribe anticipates the successful resettlement will include innovative technologies and state-of-the-art resilience measures, integrating historical traditions and proactive solutions for this time of change. These efforts can help not only Isle de Jean Charles but will also lead other communities to implement appropriate relocation measures when the conditions of their coastal locations warrant such.

The Team and its Capacity

The Lowlander Center is the coordinating lead for the resettlement plan and for the ensuing project if it is funded. The long-standing working relationship between the Tribal community and the Lowlander team has engendered trust and respect to embark on such a momentous project. The Tribe has now called upon Lowlander to coordinate this plan, which includes

assembling experts that bring cutting edge skills while honoring the tribe's voice and values. We have committed ourselves to the tribe and feel honored that they have asked Lowlander to be at their table.

The Lowlander Center was created to address the challenges of an at-risk coastline and the communities that depend on it. To achieve these goals, we have a robust approach of bringing the best of academic, agency, professional organization representatives, advocates and engaged graduate students together with the local communities to dialogue and envision solutions to both the physical and social challenges. The Lowlander approach is to work closely with the coastal communities as they adapt to the extreme storm impacts caused by the dramatic coastal subsidence and the co-occurring sea level rise.

The Lowlander founders each have 20 plus years of working with and for the marginalized communities along the coast of Louisiana on issues related to hazard mitigation and sustainable environmentally appropriate development. Similarly its officers also have long careers of doing so. The Lowlander board has national and international expertise in appropriate development and disaster mitigation and is part of a broad network of internationally recognized leaders in population displacement, affordable housing and disaster-sustainable redevelopment.

By utilizing a methodology that fosters robust participation among local knowledge holders and many specialists, insights and values, disciplinary boundaries and silos are dismantled. Local community and tribal members are sponsored to attend professional and academic meetings and presentations to share their traditional practices and to learn from others. Through this network the coastal Louisiana communities including the indigenous ones have had communication and dialogue since 2009 with the communities in Alaska with whom we plan to continue collaboration as we move forward with the resettlement.

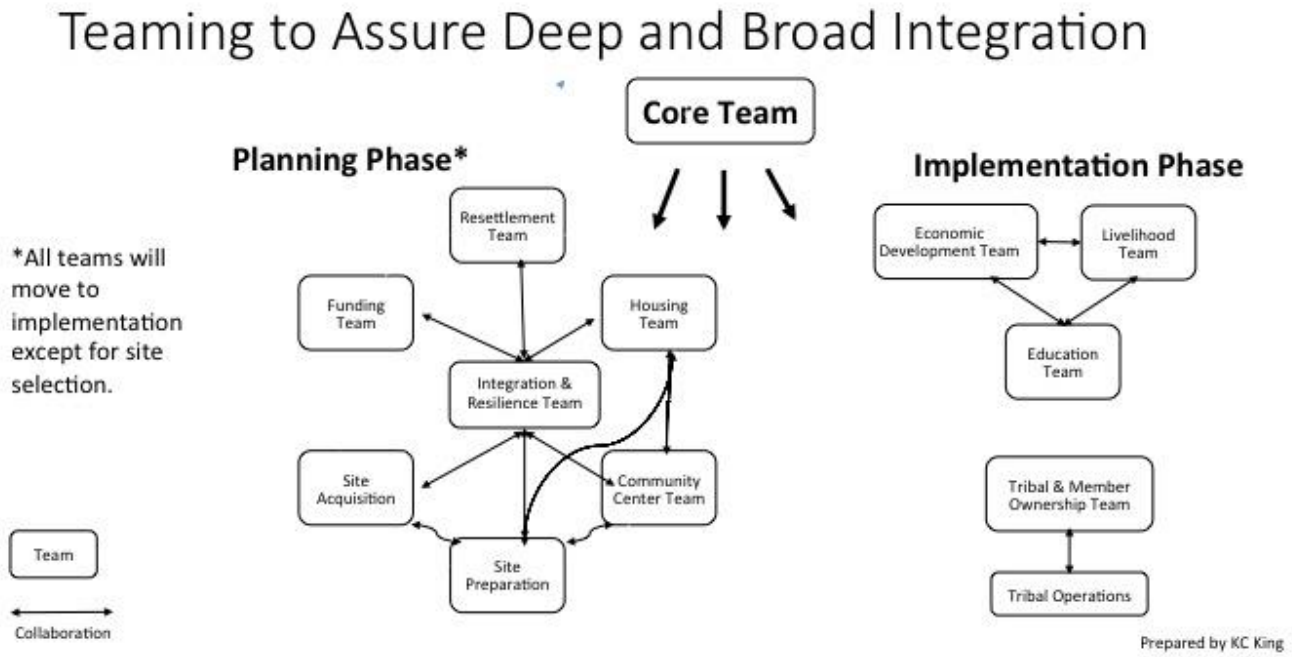
Such involvement and leadership by the citizens over the last two decades has resulted in the creation of organizations and research methods that are now being used along the coast of Louisiana and as models elsewhere. This results in more appropriate application, understanding and ownership of the project/process. The method is time-consuming but results in creating new levels of expertise by careful sharing and evaluation that hone and improve existing 'best practices' from the macro to the application of the micro and vice versa.

The resettlement is being conceived of as a "learning/teaching community." As the community is being planned and implemented, tribal members are contributing their knowledge of traditional and present best practices and learning from the team members. Once complete the settlement and the Tribe will serve as "leaders" in teaching these best practices to interested members of other communities in the region and to the organizations and non-profits that specialize in resilience including inculcating it into disaster recovery. By virtue of using and improving the best-applied practices, and by recording their application, the community will be able to robustly contribute to other communities that are already struggling with or anticipating weather displacement.

The core team/staff have had long histories of innovation stemming from the private, the academic and the community sectors. Laska created in 2003 the first applied university disaster center in the country for hands-on disaster mitigation research – the Center for Hazards Assessment, Response and Technology (CHART), at the University of New Orleans

where she was the Vice Chancellor for Research for eight years. Dr. Alessandra Jerolleman founded the Natural Hazard Mitigation Association (NHMA) in 2008, serving as its Executive Director for its first six years, and has championed mitigation locally, nationally and internationally. Other Lowlander officers advised the NHMA process and implementation. Peterson has engaged with tribal communities helping to develop systems and organizations that will help contribute to their capacity, leadership and cultural sustainability. Each of these core team members has co-published with community members on the work and research in addressing critical coastal issues.

An extensive visioning process was undertaken with the Tribe early in the planning process that produced a scoping document that is continually being refined. This visioning process drew out the key values, relationships, life-ways, housing, ecosystem and other desired components of the settlement. Through it, the actors needed to create and implement the plan were also identified. From this visioning process emerged the teams to develop the planning and implementation processes.



The Lowlander Center, as part of the Core lanning/Implementation Team, facilitates both planning and implementation and resources of the other teams (using process described above). It also enables continuing evaluative work of the Integration/Resilience Team. This team exists because the two concepts are so critical to the success of both the planning and implementation efforts; its utility stems from a System perspective that requires constant evaluation and feedback about whether the implementation is achieving the goals specified for the lifetime of the settlement.

The other planning teams (always including tribal participation) are: Site Selection, Site and Infrastructure Development, Housing, Tribal Community Center, Funding and Resettlement. To these will be added for the implementation phase: Education, Livelihood, Economic Development, Management and Ownership Structure and Operations and Maintenance. Each of the teams includes specialists that have diverse skills and are able to bring other experts on board for deliberation and consultation. The teams include individuals from the Tribe.

The Core Team has met frequently in person and with conference calls and cc:ed the full Core team on almost all communication. The latter might seem excessive but it enabled everyone to be knowledgeable, to be able to be a "sounding board" when a decision discussion was warranted and to substitute somewhat for one another on tasks if need be when specialties were shared. Each team had a chair, or co-chairs that were linked to the Core team usually through one or two of the Core members. The Director of the planning process was always informed of the decisions being made by the Core members and the chair/co-chairs of the teams and she was the official spokesperson for the actions. The other members would almost always send completed products to her to be sent forward to the state. In a few instances, the Associate Director initiated contact with the state because of her government management experience; all of her emails were also cc:ed to the Director. The co-management that the Core team developed and evolved naturally from the earlier experience of the Core Team's members appreciating best management practices.

During the creation of the plan the Director was directly responsible to the Chief and conferred with him daily if not more frequently. The products were shared with him and he was consulted on decisions. The Tribal Council and the larger meetings of tribal members were also consulted during the seven meetings held from mid-July to mid-October. The Tribe archived a large percentage of the emails and attachments of the work of the teams by being cc:ed. They continued to review the correspondence throughout the planning process and to give the Core Team feedback.

The teams include specialists that have diverse skills and are experienced in identifying other experts who are comfortable committing effort to implementing "cutting edge" best practices. The experts brought resources such as agency reports that were then shared with the Tribe. Those experts recruited for the planning teams were also vetted for their ability to utilize participatory engagement principles. Similarly, those who will be added for implementation will also be vetted in the same fashion.

The Vision: Relocation of, and Planning For the Community

The overarching goal is to create a teaching-learning community, a pilot site for climate change relocation with tribal livelihoods enhanced by innovation, teaching and sharing activities while traditional cultural traditions are rekindled with the tribal members living in one community rather than scattered as they are today – some on The Island and others living in surrounding villages and towns.

The acquisition of a site for relocation is the first major phase in providing a planned healthy community. Available sites are being evaluated for their suitability for raising families, for growing food, for having characteristics as similar to their original home as possible and as safe as possible within the context of coastal Louisiana. As a property with reduced risk is being

sought, the location should not be extremely far from the original site in order to retain traditional livelihood and cultural practices. All factors of the design and process will help to support and enhance tribal identity, sovereignty and dignity.

A Community Center will be constructed in the first phase along with the initial homes – to be constructed in three phases. The center will immediately serve as an anchor for the tribe replacing an equivalent traditional gathering place. It is intended to be a point of contact with the land, a place for meetings, rituals and evolution of site development. Its design includes temporary residential space that will double as refuge in the event of storms that threaten the existing homes of the tribal community. Housing designs will include layouts suitable for seniors and others who require assisted living, homes large enough for extended families and space for the next generation's homes near their elders. The community will be constructed as flexibly as possible so that as functions and uses emerge, the structures and infrastructure will be appropriate for current as well as these future goals. And as long as The Island exists, it will be retained for traditional uses and tribal identification as all the members relocate. It is expected that the connecting road will very soon be impassible and thus the access will be only by boat.

Conceptual Sequence of Development

A series of tribal strategic planning meetings, using a systems planning approach to achieve a robust plan and one that is generalizable, are being conducted to embrace and inform the important stages of their relocation. From these meetings the first-stage scope has been delineated. Future facilitated meetings will focus on land characteristics and usage, assessment of resources, desired housing designs, members' skills and interests for assisting in its construction and management, and evaluation of options for livelihood development based on historical practices, available resources and characteristics of place.

Planning and Design Proposal

The new site is envisioned as a practical, affordable, living demonstration of a tribal resettlement. Tribal community input, vision and leadership will be core to all phases of the design of a site that meets current and future needs and desires while tracking previous Island life, resources and infrastructure to the maximum feasible. Individual family gardens, localized flooding and water management technologies will be used to treat water as a resource rather than a problem. Bioswales, strategic tree planting and community parks and play areas will be multi-functional and will receive excess rainwater (storm water detention) as well as provide locations for recreation and community interaction dynamics.

Built structures will incorporate resilient design approaches that include extreme storm risk reduction, low-tech infrastructure and design and energy efficiency. The process will examine modest-income comparables nationwide. First floor elevations will meet both current requirements and anticipated increases (i.e. 'freeboard'). Renewables will be emphasized such as solar, earth-coupled (or water-coupled) heat pump systems, with wells shared by clustered homes, and locally-sourced building materials and equipment. Tribe members will have the opportunity to be trained in advanced sustainable building technology and participate in construction of new homes while gaining capacity for employment in the region. Other green approaches will include construction waste reduction, pervious paving and pedestrian-friendly community/commercial facilities. Wastewater innovations are also transferable globally.

Regional environmental degradation by the extraction industry and farming may present an opportunity for the tribe to gain expertise and develop entrepreneurial capacity in remediation of brownfield sites and/or coastal restoration, using advanced, low-impact, non-invasive technologies. Through creation of such high-profile competitions as the annual Water Challenge, Louisiana is taking a leadership position in water resource research and coastal mitigation entrepreneurship. The resettlement of Isle de Jean Charles will be a model project offered for review in that innovation process.

Energy Independence and Resilience

Tribal leadership is committed to energy independence and efficiency for the community, a strong expression of cultural integrity and tribal sovereignty. Self-generated electricity is a lifeline for a population when the grid is interrupted for an extended period of time, such as in hurricanes. The potential for Combined Heat and Power (CHP) will be evaluated. CHP can serve as the primary source of power, fueled by natural gas, biomass or propane. Waste heat from generator operation can be used, for example, in a value-added food processing facility to employ community members. As a renewable, methane can be collected from landfills, wastewater treatment plants or other processes. To advance toward implementation, financing options, including repayment through energy savings will be evaluated and presented.

Cultural Enhancement Benefitted By Entrepreneurial Opportunities

The planning phase will be an evolving process leading to potential business opportunities, including value added agriculture and seafood. This will require a market assessment for potential products, determination of capital investment options, assessment of raw material supply potential and a tribal branding study.

A commercial kitchen in the Community Center will serve economic, social and cultural purposes and be an asset to enhance pow wows and community cultural re-invigoration.

The tribe's traditional relationship with natural products, such as the wood they fashion into boats could be part of a natural progression. Wood waste and bagasse from local sugar processing offer 'free' and abundant raw materials that can become a value-added resource, producing a final product for sale or generating energy. The concept of developing relevant and appropriate local industry and the process leading to it will be shared in the educational instruction and tech transfer goals of the tribe for proactive solutions in a time of change. As the tribe has had to reduce its dependency on seafood harvesting with the loss of the bays and sheltered harvesting areas, new employment opportunities will make the community both economically resilient as well as structurally. The goal will be to have as self-sufficient a tribal community as possible committed to cultural re-invigoration and a model with elements useful for inclusion in the resettlement plans of other communities as such actions are warranted.

Site Description

The New Settlement of the Isle de Jean Charles Band of Biloxi-Chitimacha-Choctaw will provide tribal members an opportunity to relocate to disaster resilient and energy efficient housing, while offering the coastal Louisiana tribe a space to build cultural resilience. The tribe faces increasing pressures from storms and relative sea level rise on the Gulf Coast. In reaction, many tribal members have moved to disparate parts of the state. The tribe has physically and

culturally been torn apart with the scattering of members. The New Settlement offers an opportunity for the tribe to rebuild their homes and secure their culture on safe ground.

In order to accomplish these large and complex goals, the site and buildings which are built upon it must conform/reflect the tribe's culture and their preferences while also incorporating the most advanced state-of-the-art practices in order to assure that the community represent physical and economic resiliency along with cultural. The site relies on culturally appropriate green infrastructure design, a process described in publications from the Sustainable Native Communities Collaborative (2015).

The site will be a livable and walkable community with green infrastructure designs such as innovative storm water management, bioswales and rain gardens; wetland creation and management, various types of concrete as a prime building material, and electricity generation with photovoltaic panels. These sustainable and resilient practices combine with culturally appropriate community designs, including 100 single family homes arranged with lines of sight to other homes within a family, a central community space, and a barrier between public and private space on the settlement.

This approach is in line with the elements of resiliency included in the NDRC Capacity Building Rockefeller Academy held in July. The Economy and Society goals described were:

"1. Development strategies that support livelihoods, **bolster social stability** and **build resilience value** in communities.

2. Build **collective identity** and empower stakeholders to **strengthen community resilience**."

For no other project are these recommendations more appropriate because a tribe is being rejoined that must recreate the social stability and collective identity some 50 years after the coastal storms began driving it apart. This will very likely be the only opportunity that the tribe has to escape final community destruction and re-gather with the site/infrastructure/homes capacity to achieve the two goals described above.

The following describes the Program for the settlement and how the site, structural and infrastructure elements will be used to achieve it. From the Program – activities emanating from goals of the tribe – the physical must evolve. Review of concerns by the creation of housing and communities for indigenous groups comes the strong advisory: the indigenous group must be fully part of the imagining what the objectives are of the settlement in terms of their cultural, livelihood, safety goals (HUD-Enterprise 2013; Sustainable Tribal Communities 2015). Too often the settlements have been created "for" rather than "with" tribal members and the results have been disappointing. If the physical does not support the tribal goals, then the settlement will not only fail in this fashion but may also fail in terms of interest by the tribal members to live there and to support the **social stability**, to build **collective identity** and to work toward **community resilience**.

Site Uses and Design

The site is expected to provide multiple functions for the tribal members and the ecosystem that exists on the site and that will be enhanced with site alterations.

In the face of massive cultural and physical disruption, the New Settlement will become a site of community cultural resilience, disaster and climate change mitigation, green building practices, environmental stewardship, and sustainable economic development (EPA Tribal Green Building Toolkit 2015, Sustainable Tribal Communities 2015).

Site Planning Process and Use of Tribal, Cultural Imagination

At the time of this writing it is not known which site will be selected but the following represents a site inland to the area designated by the state as safe for at least 50 years out. The sites being considered are all sufficiently inland to be behind the flood protection systems and within an AE Flood Zone.[7] This area is further inland than the areas that the State's modeling has shown to be most at risk, and the risk will be lessened through the inclusion of four feet of freeboard. Much of the area will have sugar cane fields and be devoid mostly of trees and water features – swales, bayous, etc.

Figure 3. Concept Map of Settlement Site.

In order to consider environmental changes that should be made to the site to satisfy the program elements reviewed above, the landscape architects and the Core Leadership team (Lowlander) met with the tribe to discuss their cultural values and goals for the new settlement. One of the strongest themes that emerged was the symbolic and functional importance of the saw palmetto tree (*tala* in Choctaw) in the traditional tribal activities.

[7] Areas subject to inundation by the 1-percent-annual-chance flood event determined by detailed methods. Base Flood Elevations (BFEs) are shown. Mandatory flood insurance purchase requirements and floodplain management standards apply. - http://www.fema.gov/zone-ae-and-a1-30

The saw palmetto is a short palm usually no higher than 10 feet with a very long taproot and the possibility of a very long life. The palmetto branches radiate the inner spines from a single point at the end of the branch. The sturdiness of the leaves permits them to be woven for a variety of purposes from children's toys to thatching for roofs. The visual of the palmetto was selected by the tribe as a design guide for the layout of the community. Landscape architects Evans and Lighter imagined the various elements of the community influenced by the design (renderings below):

- Palmetto leaf as symbol for the home (thatching)
- Also as symbol for community (weaving)
- Town center placed at center of the fan image of the palmetto with the homes radiating from that center
- Shifting the palmetto spines horizontally to represent the levels of community privacy from front gate to publicly accessible pow wow grounds to community forest and then to private residences
- The town green (public pow wow) at the base of the branch
- The distributed electric generation network is similarly fan like as is possibly the geothermal heat/cooling generation.
- Finally the palmetto pattern of settlement is noted in proportion (small) to the agroforestry and Cajun prairie (larger areas).

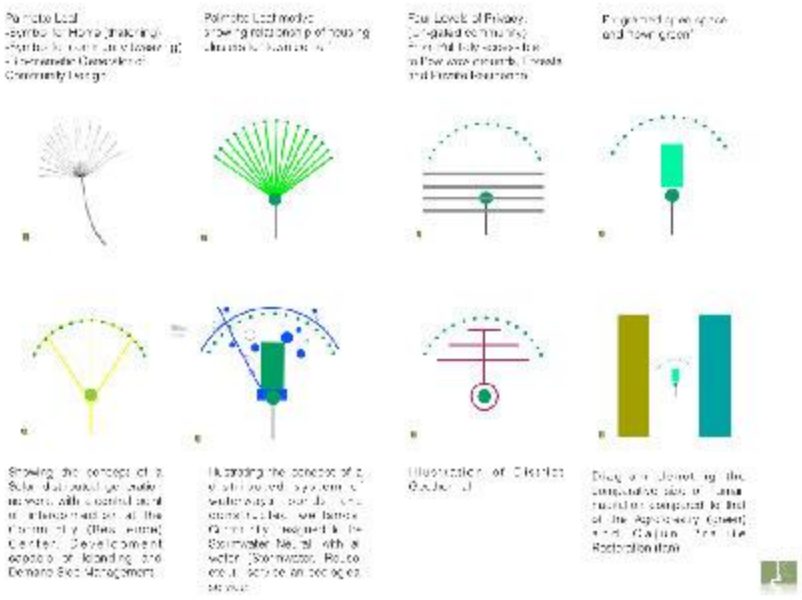


Figure 4. Palmetto Leaf Guiding the Layout of the Community Diagram.

The first phase of imagining the site with the qualities that the tribe is seeking is to determine where the water features will be placed and the forest. While it is desirable to have a bayou pass through the village, the water features can be created and maintained by ground water and managed runoff because the ground water remains so close to the surface of the land.

Figure 5. Profile of Water Features on the Site.

The forest is placed between the entrance to the community and the homes (which are located in the tan area of the diagram below) as symbolic division for the privacy that the tribe requested. The water features enhance the forest and the natural visual at the back of the houses as well as providing water for crawfish ponds, migratory bird sanctuary and cleansing of the storm water. These added benefits support the economic resilience and sustainability of the community while minimizing risks.

Figure 6. Map of Water and Forest Features on the Site.

A profile of the water features is presented in the following attachment.

Utilizing the site enhancement, the landscape architects then overlaid the palmetto image to suggest the way in which the homes would be spread out on the outer edges of the "fan" (see below). The primary and secondary streets through the residential area and around the inner edge of the agriculture area are noted. The exits other than the main entrance will be only for agriculture and will remained locked except for these purposes.

Figure 7. Map of Water Flow on Site.

Placed on the site (see diagram below) will be individual homes of a variety of sizes (bedrooms), and a tribal community center at the front of the property facing a public green space that will permit public services and commerce, recreation and pow wows open to the public. A public market that can sell value added agricultural products, a health clinic, a daycare center for toddlers and elderly and an educational center for the community and tribe are a core part of the community-tribal center. (The next section describes them.) Public parking will be provided around the green space for the businesses and visiting the museum/traditional arts shop, etc. Behind the tribal center will be private ritual space, a cemetery, recreational fields all placed on the public side of the forest but within the more private area. The forest will include walkways with exercise stops, sculpture related to the tribe's history and present activities described in native tongue/French and English and ethnobotany signs next to plants important to tribal customs including healing/ medicinal and foods. The Cajun prairie will graze buffalo, an animal native to the area and a key element in native prairie habitat restoration, and the waterways will allow for crawfish harvesting and possibly rice.

Also contained within the site will be state-of-the-art energy/water/heating/cooling infrastructure. The IDJC resettlement team is committed to achieving a self-sufficient, sustainable and resilient community that will have a minimal impact on the environment. The Team has consulted numerous sustainable and resilient development frameworks and is adopting those approaches most appropriate to the community as determined by the residents and the physical/environmental demands of the coast. The criteria that the residents have set forth are cost-effectiveness, cultural sensitivity, local materials, energy efficiency, and economic opportunities for tribal members and minimum carbon footprint, among others. The tribe will develop a housing policy for green operations much like the one described in (EPA Tribal Green

Building 2015). The housing policy will be part of the Tribal Housing Council and will include site operations, management standards, health and safety, and hazard mitigation. The Tribal Council will be developed and trained by such experts as the Burlington Associates, The Sustainable Tribal Community Collaborative and others that are on the core team. The matrix of standards will be used to monitor results and evaluate their applicability for this region.

An example of using best practices is the way in which the community will include water into all elements of planning. The region is both plagued and blessed by water. The IDJC community treats water as a resource to be managed rather than a problem to eliminate. The design of water features and topography will manage runoff with the goal of retaining all storm water on the property. Rain gardens and bioswales will also accumulate and infiltrate runoff and increase habitat diversity. Open recreation areas will serve double duty as part of this same strategy. An analysis of existing vegetation will help identify and shape microhabitats for planting and growing traditional native plants. The extensive natural area separating the tribal center from the residential area will be designed to accommodate a wealth of plantings, shade patterns, edge effect, etc., to enhance habitat value for education and harvesting. Naturally cleaned water may filter into bayous passing through the site, which would improve conditions in the surrounding bayous that provide drinking water for the local municipalities.

Operating costs will be reduced substantially through earth-coupled heat pumps. Individual homes, in adjacent clusters, will be plumbed in to a community geoexchange system serving 6 to 9 homes, eliminating the need for drilling of individual wells. Most of this will be completed in Phase 1 in conjunction with earthwork.

Each home will have at least 6 kW of rooftop photovoltaic capacity, grid-connected to the community and to Entergy. Electricity to circulate water from geoexchange wells within each house and operate the indoor HVAC units will be considered critical infrastructure, as are power to each home's freezer and elevator. The Tribal Center will have solar panels installed as well, backed up by storage batteries for resilience in the event of grid failure. Building heating and cooling will rely on an earth-coupled heat pump installation independent of the residential systems.

The community will connect with Terrebonne Parish potable water supply, and will complement that source with rainwater captured from roofs. At the Tribal Center, rainwater will be stored, and all potable water then treated and distributed through the community system. This will obviate the common practice of purchasing bottled drinking water in response to a long-term Parish boil water advisory. Homes will harvest rainwater for irrigation and non-domestic uses.

Since Terrebonne Parish government does not anticipate extending wastewater lines to areas being considered, on-site wastewater treatment will utilize best practices to reduce energy costs and re-use the resource. Individual homes will be connected to septic tanks, from which the effluent flows through subsurface reed bed systems in common use in the parish already. Naturally treated water will infiltrate back to the earth. On a larger scale, the Tribal Center's wastewater will be treated through a 'living machine'. This can take a variety of forms and designs; one capable of treating 2,400 gallons per day can be found at: https://www.clatsopcc.edu/about-ccc/campuses/merts/living-machine .

A primary purpose for the first phase of the tribal center will be to develop businesses that can have flexible space that can also serve as a meeting area and a refuge during storms such as the recent Patricia, so it will be designed and equipped to function independently for at least a week. It is being designed to meet the Federal Emergency Management Agency's Community Shelter Standard, allowing the Center to serve as a shelter for community members (as well as Tribal Members living closer to the coast) in the event of tropical cyclone. The flexible space design will allow a meeting area and shelter to accommodate a child and adult day care center.

Pervious paving will be incorporated into all feasible roadways and parking lots. Some technologies are permanent, which applies best to major roads. Others can be temporary and moved if need be, which could be preferable on parking areas where grasses will grow in cells, creating the appearance of a meadow. This approach reduces storm water runoff and heat island effect and increases groundwater recharge.

Figure 8. Map of Land and Water Features on Site.

Settlement Structures: Designing for Cultural Relevance and Community Resilience

The Isle de Jean Charles Band of Biloxi-Chitimacha-Choctaw Native American community has the opportunity to be in charge of their own resilient future and to use a new and sustainable direction for how, when and where housing is planned, financed, and constructed. The tribal members are addressing how their new houses will reflect their cultural needs as well as incorporate the recommendations from planning partners for contemporary, storm safe, green energy efficient practices, green architecture construction materials and cost savings. Arranging the houses in a cluster with commons provides a visual of and easy access to neighbors, which, contributes significantly when promoting cultural community resilience. Similarly the presence of protective factors for safety within their community such as having a buffer between the

public and private areas of the community can help mitigate the effects of disruption and promote a healthy recovery from the move away from the island and future neighboring growth and development.

The tribal community has the potential to act in its best interest as a people having a sense of control and ownership in the community's decision making. They are inclusive and welcoming with different segments of their community having actively participated in many and various aspects of the planning process. Such diverse qualities have been found to support resiliency, especially a problem solving approach to coping and the perception that they are capable of performing tasks needed for recovery (Lindell & Whitney, 2000). Another factor that leads to resilience for indigenous groups is enculturation - their involvement with traditional culture, activities and spirituality (Albrecht 2007). The IJDC tribe believes that their "homelands" (the Island) should be preserved and made available to them as long at the island exists for cultural activities such as fishing and food gathering. Access to the space is part of the healing process from cultural trauma and disconnection in leaving the. At the same time they will learn to value and extract in a similarly productive manner from the forest, gardens and waterways on the land in their new settlement.

The Tribal Community Center and Program

Two types of major structures will be built in the settlement: a tribal community center and homes for the tribal members. The tribal community center is extremely important to the community for commerce and for the preservation and invigoration of culture. The presence of such a center signifies the presence of the tribal heritage embodied in the activities that go on in the center. It is also a spiritual location and a symbolic declaration that the community has been relocated. The design of the center reinforces these activities and acts as a physical representation of the tribe.

Conversations about the function and use of the community center occurred in many planning session as well as in two consecutive tribal meetings with the architects Fran Palama, James Niimoto and Bill Wong. Dr. Palama facilitated the conversation envisioning the uses of the center and what it should look like. She asked the tribal members to create their visions on paper and to present them to the group.

Included in the tribal group that participated were young members of the tribe. (See accompanying page of photos, which include the design drafts offered by the members.). The design that evolved was presented to the tribe in a 3-D rendering the following evening.

Upon receiving the ideas of the tribal members, architects Palama and Niimoto created the preliminary renderings of the tribal community center.

Figures 9-12. Community Tribal Center Preliminary Renderings.

JENKEN PACIFIC INCORPORATED | ISLE DE JEAN CHARLES-NEW COMMUNITY HOUMA, LA | JEAN BAPTISTE NAQUIN TRIBAL CENTER, PERSPECTIVE 2 SCALE: NTS, SIMPLIFIED MODEL

JENKEN PACIFIC INCORPORATED | ISLE DE JEAN CHARLES-NEW COMMUNITY HOUMA, LA | JEAN BAPTISTE NAQUIN TRIBAL CENTER, EAST ELEV. SCALE: 1" = 40'-0"

As they were discussing their visions for the center the tribe expressed their ideas of a sustainable, safe and walkable center. The spaces provide the community with indoor and outdoor activities (Table 1). The facility will be designed with interior flexibility so that the program of activities can be incorporated into more efficient space. Each space is then assigned to transform into other functional spaces allowing for commerce and for traditional activities The following table suggests the size of the spaces, its uses and how it can be transformed to other activities.

Table 1.
TRIBAL COMMUNITY CENTER PROGRAM

SPACE	SIZE	SQ. FT.	USE	TRANSFORM SPACE	NOTES
Gym	200x 100	20,000	In-door activities; showers/bathrooms	Convention Ctr.; community shelter (FEMA Standards)	
Dormitory	24x12 (50 rms.)	14,400	House visiting guests	Community Shelter	
Retail spaces	50x20 (15)	15,000	Food court; traditional and cultural enterprises; tribal admin. Office	Small businesses	
Spiritual Gathering Center	100x50 60x50	8,000	Worship Services	Community shelter	
Health & Wellness Clinic	50x100	5,000	Outpatient rooms w/staff office		Ref. Georgia Tech
Pharmacy		1,000	Prescriptions		
Wellness & Fitness Center	100x80	8,000	Exercise equip., health-fitness classes	Community shelter	
Day Care Center	100x 100	10,000	Seniors & kids		Ref. Gen. Svcs. Admin. 2003
Commercial kitchen- servicing program and retail		1,500	Value added ag., for dormitory occupants, day care center, evacuation		
Pow Wow Area		-------	Ceremonial protocols and gatherings		Outdoor
Outdoor Field Play-ground	5 acres	-------	Football, baseball, soccer lacrosse		outdoor
School Rooms	50x92	4,600	Educational programs	Cultural activities	Audio/visual language learning
Arts & Demo Rm	50x100	5,000	Teaching cultural traditions	Storage of supplies	
Parking	1 acre		152 spaces		https://ag.tennessee.edu>cpa/information
Living Museum	50x150	7,500	Display art & artifacts		
TOTAL		**100,000**			

Housing

Tribal members were presented with various configurations of homes: single, double, multi-unit townhouses. There was a clearly expressed preference for single-family houses. There was also a discussion of the placement of the houses. Traditionally when there is land behind an initial house placed on a bayou, the family member places their new home behind the first. However, the Island did not demonstrate that type of placement of homes due to the narrow strip of land with water on the back and front of each home. Thus, more discussion must happen before the architects and site planners learn the placement preferences of the tribe. Location of the houses will also depend upon the shape of the site and the tree and water feature configuration. The way the houses are presented on the site design is one option at this time used for discussion.

Houses will be elevated on pilings, exceeding 4 feet above 50-year base flood elevation, which reduces insurance premiums through the incorporation of freeboard.[8] According to some estimates, even just three feet of freeboard can lead to over $100,000 in premium savings over the typical life of a mortgage. Furthermore, homes that are built on raised foundations are far simpler to elevate should additional elevation ever be necessary. Additionally, flooding will not damage them, even under expected future conditions, in the way conventional homes built to the minimum standards will be. The homes are being designed to the Fortified for Safer Living Standard, a code plus standard developed by the Insurance Institute for Building and Home Safety (IIBHS), the highest standard existing. This will increase the homes resistance to the impacts of hurricane force winds and reduce the likelihood of losses. In some markets, building to this standard has also reduced home insurance costs.

Homes will be constructed of a variety of resilient materials such as autoclaved aerated concrete (AAC) or insulated concrete forms (ICF). Building products will be evaluated to conventional products as to their resistance to rot and termites. Both AAC and ICF are better able to withstand high winds and impacts than timber construction. Additionally, ICF has a high R-value, reducing building heating and cooling requirements. Ideally, the building materials will be fabricated in the vicinity of the community, which will greatly reduce shipping costs and create an economic development opportunity for the region. As designs and materials are selected, the team of engineers, architects and energy technicians will deliberate on what design and products reflect best integrated practices for the immediate area. Efficient building performance standards will be incorporated into building design and construction. Residential appliances will be certified Energy Star or comparable. Light-emitting diode (LED) lighting will be used throughout to greatly reduce electricity use and extend equipment life.

Housing designs are still to be examined for a “flavor” of earlier tribal homes on the Island as well as the regional Cajun designs that have endured coastal conditions. Within these considerations are elements of the earlier homes that enabled efficient – effective air circulation and sturdiness of construction techniques. Louisiana architect Edward Cazayoux has added these designs to the Wong/Palama/Niimoto designs. Interiors will have an open design because of the preference for families to gather frequently. The remaining qualities of the interiors will reflect the desires of the families.

[8] The area above predicted level of 1 in 100 year flooding.

Funding the Resettlement

Isle de Jean Charles (IDJC) Biloxic-Chitimacha-Choctaw tribal leadership and project team for the IDJC Resettlement Project ("Project") has developed a potential funding plan for this Project that includes multiple components. The funding plan assumes an award from the HUD NDRC that will cover around 65% of the total Project costs, and outlines a range of additional funding sources that is more than sufficient to cover the remaining costs. The additional funding sources include: supporting commitments with a value of over $500,000, over $8,000,000 in potential government and foundation grants, over $6,000,000 of potential loans, and up to $35,000,000 in tax credits.

The full list of potentials sources is provided in the attached table, with key highlights listed below.

Supporting Commitments

The Core Team has secured the following supporting commitments:

1. Insurance Institute for Business and Home Safety
2. Intertribal Agriculture Council
3. Association of State Flood Plain Managers
4. First Presbyterian Church Bayou Blue
5. Engineers Without Borders
6. Individual donors

Government and Foundation Grants

The Core Team is exploring various grants that can be made to the community, or in some cases to a partner entity such as Terrebonne Parish. These include:

1. Pre-Disaster Mitigation Grant Program (FEMA): This grant could cover the hardening of the Tribal Center to meet the Community Shelter Standard as outlined in 361.
2. Shakopee Mdewakanton Sioux Community Grants: This grant could provide $100,000 towards each phase of the development.

Loans

The Core Team is exploring various loans that can be made to the community as well as to individuals. These include:

1. Renewable Energy America Program Loans and Grants (USDA Rural Development): These loans, and grants in some instances, can be utilized to purchase renewable energy systems.
2. Single Family Home Ownership Direct Loans (USDA Rural Development): These loans to individuals can be utilized to finance the construction of the new homes

Tax Credits

Tribal leadership and Project team within in its core have tax credit practitioners that have demonstrated substantial success in structuring and arranging of private and tax advantage financings, including use of tax credits, tax increment financing, and federal, state and local subsidies. These include and are not limited to:

1. New Markets Tax Credits (NMTC) Program: The federal NMTC program is currently the largest federal economic development incentive program. The program was enacted as part of the Community Renewal Tax Relief Act of 2000 to encourage investment in low-income communities. Economic incentives are important in helping low-income census tracts recover from the recession, since these areas usually have the most difficulty generating new capital. The original authorizing legislation provided $15 billion in NMTC authority between 2000 and 2007. With extensions of the program, to date, the Community Development Financial Institutions (CDFI) Fund has awarded $40 billion in New Markets Tax Credit allocation generating $63 billion in investment between 2003 and 2012 in NMTC business – a leverage of approximately 8 to 1 and generating 750,000 jobs.

   NMTC is very flexible and can be used for a wide range of purposes. The Project will seek access to NMTC to support many aspects of the Project, such as and not limited to: infrastructure, reforestation, waterway restoration, alternative energy, and the tribal center (e.g. certified kitchen, childcare and elder day facilities, recreational and cultural spaces, and classrooms).

   The size of the NMTC is 39% of the capital assembled by the certified Community Development Entity (CDE), taken over seven years. The capital is typically approximately the project budget amount. At closing, investors pay a percentage of the total benefits they receive over time. This means the tax credits result in a subsidy for projects typically in the range of 17 – 22% of the total capital raised by the CDE. The capital must be used for qualifying projects, usually required to be located in low-income census tracts or projects that serve or employ low-income persons.

2. The Low-Income Housing Tax Credit (LIHTC) Program: The LIHTC program is a tax incentive intended to increase the availability of low-income rental housing. The tax credit is a credit against regular tax liability for investments in affordable housing properties constructed, acquired and rehabilitated after 1986. The LIHTC program provides millions of dollars every year for the development of affordable housing. The program provides for new construction or the rehabilitation of existing units, with generally 70 to 90 percent investor equity.

   The Project will qualify for the tax credits, because the proposed Project involves new construction of units that will be occupied by low-income individuals and families. The Isle de Jean Charles Band of Biloxi-Chitimacha-Choctaw Indians will submit an application to Louisiana Housing Corporation to create single family and multi-family housing. By accessing the Louisiana Housing Corporation LIHTC program, the IDJC Band of Biloxi-Chitimacha-Choctaw Indians will ensure residents are granted an opportunity to obtain safe, affordable, energy efficient housing.

The Project team includes experts that will assist the IDJC Band of Biloxi-Chitimacha-Choctaw Indians at each stage of the development process, application, award, securing an investor and beginning construction. The Project team will work with tribal leadership with every step of the process to ensure that their homes are completed on budget and on time.

3. Residential Renewable Energy Tax Credit: Established by the Energy Policy Act of 2005, the federal tax credit for residential energy property initially applied to solar-electric systems, solar water heating systems and fuel cells. The Energy Improvement and Extension Act of 2008 extended the tax credit to small wind-energy systems and geothermal heat pumps, effective January 1, 2008. Other key revisions included an eight-year extension of the credit to December 31, 2016; the ability to take the credit against the alternative minimum tax; and the removal of the $2,000 credit limit for solar-electric systems beginning in 2009. The credit was further enhanced in February 2009, by the American Recovery and Reinvestment Act of 2009, which removed the maximum credit amount for all eligible technologies (except fuel cells) placed in service after 2008.

   The IDJC Band of Biloxi-Chitimacha-Choctaw Indians (taxpayers) will claim a credit of 30% of qualified expenditures for a system that serves their new dwelling units, as this Project is encouraging resiliency through self-sufficiency that includes the use of alternative energy. Expenditures with respect to the equipment are treated as made when the installation is completed. The "placed in service" date is the date of occupancy by the new homeowner, as each dwelling will be new construction. Expenditures include labor costs for on-site preparation, assembly or original system installation, and for piping or wiring to interconnect a system to the home. If the federal tax credit exceeds tax liability, the excess amount may be carried forward to the succeeding taxable year, up until 2016. At this time, it is unclear whether the unused tax credit can be carried forward after then.

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[i] Coastal Louisiana experiences rising waters, subsiding land due to the aging of the Mississippi delta, loss of land because the marsh plants die due to the salt-water inundation and the flow of salt water more rapidly through the marshes via canals excavated for oil and gas exploration and historic first growth cypress harvest.

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